Video Game Design - Unit 3 - Game Creation

Unit Focus

In this culminating experience, students will use the engineering design process to create a unique video game from concept idea to a playable, marketable video game. This video game will act as an all encompassing PBA and final exam for the entire course, allowing students to demonstrate a comprehensive understanding of the concepts acquired throughout all the units of the course.

Stage 1: Desired Results - Key Understandings

Standard(s)

CSTA: Computer Science Standards (2017-)
CSTA: 9-10

- Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests. *3A-AP-13*
- Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions. *3A-AP-16*
- Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs. *3A-AP-18*

ITEEA - Standards for Technological Literacy
Technological Literacy: K-12

- Students will develop an understanding of the role of society in the development and use of technology. *6*
- Students will develop an understanding of the attributes of design. *8*
- Students will develop an understanding of engineering design. *9*
- Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. *10*
- Students will develop the abilities to apply the design process. *11*
- Students will develop an understanding of and be able to select and use information and communication technologies. *17*

Madison Public Schools Profile of a Graduate

- Design: Engaging in a process to refine a product for an intended audience and purpose. (POG.2.2)

Transfer

Students will be able to independently use their learning to...
T1 Develop a product/solution that adheres to key parameters (e.g., cost, timeline, restrictions, available resources and audience).
T2 Explore and hone techniques, skills, methods, and processes to create and innovate.

Meaning

Understanding(s)

Students will understand that...
U1 Once a design has been completed and a solution implemented, the solution must be tested and improved until it is acceptable. This improvement is done using the process of iteration, where steps of the design process are repeated over and over (iterated) to produce the best result.
U2 Successful video game design requires a thorough attention to the complex details within the elements of a good game: goals, decisions, immersion techniques, color, sound, relatable characters, genre, balance, rewards and flow.
U3 Engineering design is a systematic process used to initiate and refine ideas, solve problems, and create new products and systems.
U4 Identifying your target market and creating a marketing plan specific to that target market is essential to creating a game with revenue potential.

Essential Question(s)

Students will keep considering...
Q1 How do artistic elements such as sound, graphics, characters, and game worlds enhance the playability and functionality of games?
Q2 What happened when we tested the game? How do we use that data and available resources to make the game better over time and more appealing to our target market?
Q3 What is the problem I am trying to solve through the design? How do I design this based on the constraints? How do we market this design to attract an already saturated market?

Stage 1: Desired Results - Key Understandings

- Collective Intelligence: Working respectfully and responsibly with others, exchanging and evaluating ideas to achieve a common objective. (POG.3.1)
- Product Creation: Effectively use a medium to communicate important information. (POG.3.2)

Acquisition of Knowledge and Skill

Knowledge	Skill(s)
Students will know... **K1** Market Segmentation (Geographic, Demographic, Thoughts and Feelings, & Behaviors) **K2** Marketing Mix (Product, Place, Price & Promotion, Unique Selling Position)	*Students will be skilled at...* **S1** Create a promotional plan that will effectively reach a specific target market. **S2** Create a specific target market with details of their purchasing habits.